What is claimed is:

1. An electrode device for taking a plurality of EEG measurements, comprising:

(a) a plurality of electrode contact-points configured atop a support member;

(b) said contact-points in electrical communication with, and in relative proximity to, an integrated circuit comprising converter circuitry adapted for converting analog EEG signals measured, having originated from within a patient, into digital signals prior to transmission thereof to a processing unit; and

(c) said integrated circuit in further electrical communication with a lead assembly having wiring for said digital signal transmission.

2. The electrode device of claim 1 wherein:

(a) said support member comprises a plurality of layers, said plurality of layers comprises a power plane and a ground reference plane; and

(b) said integrated circuit further comprises circuitry for digital filtering and signal analysis of said digital signals.

3. The electrode device of claim 1:

further comprising **(a)** a quick-connect mechanism located along said lead assembly between said integrated circuit and a host processing unit, and **(b)** an antibiotic cuff mechanism located along said lead assembly between said quick-connect mechanism and a stabilizer of said lead assembly to a location on said patient; and

(c) wherein said support member is generally flexible and comprises a plurality of layers.

4. The electrode device of claim 1 wherein said integrated circuit further comprises circuitry for: **(a)** digital filtering of said digital signals; **(b)** signal analysis and processing of said digital signals; **(c)** memory storage of said processed digital signals; **(d)** coalescing said digital signals employing a bus protocol for reducing wiring; and **(e)** wireless transmission of information about said processed digital signals.

5. The electrode device of claim 1 wherein:

(a) said integrated circuit further comprises circuitry for digital filtering and signal analysis of said digital signals; and

(b) said processing unit comprises a recorder-processor unit for receiving information about said digital signals from said integrated circuit, said recorder-processor unit adapted to be worn by said patient, and a transmission medium disposed between said integrated circuit and said recorder-processor unit.

6. The electrode device of claim 5 wherein said transmission medium is selected from the group consisting of **(a)** air, wherein said information is transmitted wirelessly, and **(b)** cabling, a first end of which is in electrical communication with said integrated circuit and a second end of which is connected to said recorder-processor unit.

7. The electrode device of claim 6:

(a) wherein said transmission medium comprises said cabling; and

(b) further comprising a quick-connect mechanism located along said lead assembly between said integrated circuit and said recorder-processor unit, and a host processor remotely located from said recorder-processor unit for further processing said information about said digital signals.

8. The electrode device of claim 1:

(a) further comprising a quick-connect mechanism located along said lead assembly between said integrated circuit and said processing unit, said unit comprises a host processor remotely located from said support member; and

(b) wherein said integrated circuit is supported by said lead assembly, and said support member is generally flexible and comprises a plurality of layers.

9. The electrode device of claim 1 further comprising a separation marking between at least one of said contact-points and a second of said contact-points for permitting a severing of said support member therealong for removing a portion of said support member containing said at least one contact-point; and wherein a remaining portion of said support member comprising said integrated circuit is used for said measuring analog EEG signals through said electrode contact-points of said remaining portion.

10. The electrode device of claim 1 further comprising: **(a)** a second plurality of second electrode contact-points configured atop said support member; **(b)** said second contact-points in electrical communication with a second integrated circuit comprising converter circuitry adapted for converting analog EEG signals measured by said second contact-points, into digital signals; and **(c)** said second integrated circuit in electrical communication with said lead assembly.

11. The electrode device of claim 1 further comprising: **(a)** a second plurality of second electrode contact-points configured atop said support member; **(b)** said second contact-points in electrical communication with a second integrated circuit comprising converter circuitry adapted for converting analog EEG signals measured by said second contact-points, into digital signals; **(c)** a separation between said second plurality and said second integrated circuit and said first plurality and said first integrated circuit, permitting a severing of said support member therealong.

12. An electrode device for taking a plurality of EEG measurements, comprising:

(a) a plurality of electrode contact-points configured atop a support member;

(b) said contact-points in electrical communication with an integrated circuit comprising converter circuitry adapted for converting analog EEG signals measured, having originated from within a patient, into digital signals;

(c) said integrated circuit being supported by said support member; and

(d) said integrated circuit in further electrical communication with a lead assembly having antenna wiring adapted for wireless electrical transmission of said digital signals.

13. A method of taking a plurality of EEG measurements, the method comprising:

(a) measuring analog EEG signals, having originated from within a patient, through a plurality of electrode contact-points configured atop a support member;

(b) prior to transmitting information about said analog EEG signals to a host processing unit, converting said analog EEG signals into digital signals using circuitry of an integrated circuit in electrical communication with, and in relative proximity to, said contact-points;

(c) electrically transmitting said digital signals from said integrated circuit through a lead assembly; and

(d) further transmitting said digital signals to said host processing unit.

14. The method of claim 13:

(a) further comprising, after said step of converting said analog EEG signals and prior to performing said step of electrically transmitting from said integrated circuit, the steps of: filtering and processing said digital signals; and

(b) wherein said step of electrically transmitting from said integrated circuit comprises transmitting through said lead assembly to a recorder-processor unit adapted to be worn by said patient, and said step of further transmitting said

digital signals comprises transmitting information about said processed digital signals from said recorder-processor unit to said host processing unit.

15. The method of claim 14 wherein:

(a) said step of transmitting through said lead assembly comprises wirelessly transmitting said digital signals from an antenna wiring of said lead assembly to said recorder-processor;

(b) said step of further transmitting information about said processed digital signals from said recorder-processor unit comprises wirelessly transmitting electromagnetic waves outwardly from said recorder-processor unit to said host processing unit.

16. The method of claim 14 wherein:

(a) said step of transmitting through said lead assembly comprises transmitting said digital signals through a cabling having an antibiotic cuff for preventing infection therealong, in electrical communication with said lead assembly to said recorder-processor; and

(b) said step of further transmitting information about said processed digital signals from said recorder-processor unit comprises connecting said recorder-processor unit to said host unit and downloading said information.

17. The method of claim 13:

(a) further comprising, prior to said step of measuring analog EEG signals, joining a quick-connect mechanism located along said lead assembly between said integrated circuit and said host processing unit, providing a hardwire electrical connection for performing said step of further transmitting said digital signals to said host processing unit; and

(b) after taking the plurality of EEG measurements, disconnecting said quick-connect mechanism and leaving said support member in place for the taking of EEG measurements, subsequent in time.

18. A method of taking a plurality of EEG measurements, the method comprising:

(a) providing a first and second plurality of electrode contact-points configured atop a support member, said first plurality in electrical communication with a first integrated circuit in electrical communication with, and in relative proximity to, said first contact-points;

(b) severing said support member along a separation between said first and second plurality;

(c) locating that portion of said support member comprising said first plurality and said first integrated circuit for measuring analog EEG signals, having originated from within a patient, through said first plurality of electrode contact-points; and

(d) prior to transmitting information about said analog EEG signals to a host processing unit, converting said analog EEG signals into digital signals using circuitry of said integrated circuit.

19. A method of taking a plurality of EEG measurements, the method comprising:

(a) providing a plurality of electrode contact-points configured atop a support member in electrical communication with an integrated circuit in relative proximity to said contact-points;

(b) severing said support member along a separation marking made between certain of said electrode contact-points and removing a portion of said support member containing at least one of said contact-points;

(c) locating a remaining portion of said support member comprising said integrated circuit, for measuring analog EEG signals, having originated from within a patient, through said electrode contact-points of said remaining portion; and

(d) prior to transmitting information about said analog EEG signals to a host processing unit, converting said analog EEG signals into digital signals using circuitry of said integrated circuit.

20. The method of claim 19:

(a) further comprising, after said step of converting said analog EEG signals and prior to a step of electrically transmitting said digital signals from said integrated circuit, the steps of: filtering and processing said digital signals; and

(b) wherein said step of electrically transmitting from said integrated circuit comprises: transmitting said digital signals from said integrated circuit through a lead assembly having wiring for a ground reference and for supplying power, and transmitting through a quick-connect mechanism to a host processing unit.

21. The method of claim 19 further comprising, after said step of converting said analog EEG signals, a step of wirelessly transmitting electromagnetic waves comprising information about said digital signals, outwardly from an antenna wiring in electrical communication with said integrated circuit to a host processing unit.